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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/818,627

03/28/2001

Daisuke Kotake

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02/27/2004

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EXAMINER

EDWARDS, PATRICK L

ART UNIT

PAPER NUMBER

2621

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,627

Applicant(s)

KOTAKE ET AL.

Examiner

Patrick L Edwards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to because there are several instances of misspelled words that need to be corrected.. Figures 13, 14, 17 and 19 contain the word “decording”, which should be corrected to read as “decoding”. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20, 33 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, which is representative of claim 11, 33 and 35 the metes and bounds of the term “view points” as used in this particular context are not clear. The claim seems to indicate that an entire image (which comprises a plurality of partial images) corresponds to a particular view point (“each of a plurality of entire images corresponding to a plurality of view points”). However, the subsequent paragraph states that the partial images (in a given entire image) are selected based on viewpoint information (“selecting any of the of the partial images stored in said storage means based on information about a position and a direction of a view point”).

Since the claim initially indicates that an entire image corresponds to a given view point, it should logically follow that the sub-images of that entire image should correspond to the same view point. As a

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result, it is unclear how a partial image can be selected based on viewpoint information if the partial images correspond to the same viewpoints.

With regard to claim 2, which is representative of claim 12, the applicant recites a means for selecting a plurality of partial images. Claim 1, which claim 2 depends from, indicates that a singular partial image is selected ("selected partial image"). These two situations do not appear to be in accord with one another.

Claims 3-10 and 13-20 are rejected as being dependent on indistinct claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 9, 11, 13, 19, 21-23, 27-29 and 33-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyer et al. (USPN 6,337,882).

With regard to claim 1, which is representative of claim 11, Boyer discloses an image reproduction apparatus which comprises a means for storing a plurality of partial images (element 220 of Fig. 2). The partial images are obtained by dividing an entire image by a predetermined field of view (col. 6 lines 22-24). The horizontal partitioning disclosed in Boyer is analogous to the division of an image as recited in the claim. This is done for a plurality of entire images corresponding to a plurality of view points (col. 3 lines 53-55). On line 55 Boyer discloses producing panoramic images. These images inherently correspond to a plurality of view points as recited in the claim. Boyer further discloses that the

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field of view of the entire image is wider than the display field of view of an image displayed on a display means (col. 6 lines 25-30).

Boyer further discloses a means for selecting a partial image based on information about a position and a direction of a view point, and the display field of view of the image displayed on the display means (col. 6 lines 31-52). The inflated images disclosed in Boyer are analogous to partial images as recited in the claim. Boyer discloses selecting these inflated images based on the selected image view, which is analogous to view point position and direction, and display field of view as recited in the claim. Boyer also discloses that the selected image views are displayed on a display screen (col. 4 line 13).

Boyer further discloses a means for generating an image corresponding to the position and direction of a view point from the selected partial image, and providing the generated image for the display means (col. 6 line 62 – col. 7 line 6). Boyer discloses selecting partial images of a panoramic image on the basis of the direction of a view point. The panoramic image inherently corresponds to a given view point position. As a result, the partial images, which are selected on the basis of direction within a panoramic image, are actually being selected based on both position and direction of a view point.

With regard to claim 3, which is representative of claim 13, Boyer discloses that adjacent partial images share overlapping portions (col. 6 lines 22-24).

With regard to claim 9, which is representative of claim 19, Boyer discloses a means for compressing and storing each partial image (col. 5 lines 34-40).

With regard to claim 21, which is representative of claim 27, Boyer discloses a means for dividing an image having a predetermined field of view into a plurality of partial images (col. 6 lines 22-24) and a means for compressing each of the partial images (col. 5 lines 35-40).

Boyer further discloses a means for adding position information to the partial images, means for inputting position information, and means for reading a corresponding partial image according to the input information and decoding the image (col. 6 lines 31-44). Boyer discloses a means for inputting a selected image view, which is analogous to inputting position information as recited in the claim. Each selected image view has a corresponding direction associated with it, which is analogous to the position information as recited in the claim. Boyer discloses selecting a partial image based on this selected image view and then decoding the image. Since the partial image is selected based on the position information of a selected image view, it follows that the partial images have a position information associated with them. It is inherent that this position information had to be added to the partial images. As a result, we can conclude that Boyer teaches a means for adding position information to the partial images.

With regard to claim 22, which is representative of claim 28, Boyer discloses that the division means is designed to divide a panoramic image into a plurality of field of view (col. 3 lines 6-8).

With regard to claim 23, which is representative of claim 29, Boyer discloses a means for inputting position information and field of view information and a means for comparing the position information and the field of view information with position information stored in the storage means, thereby reading and decoding the partial images corresponding to the position and field of view input by the input means (col. 6 lines 31-44). The direction of the selected image view as disclosed in Boyer has already been stated to be analogous to position information as recited in the claim. It is also analogous to the claimed field of view information in that it defines a distinct field of view for a user. The rest of the limitations of the claim have been addressed with respect to claim 21 above.

With regard to claims 33 and 34, a computer-executable program comprising code which causes the computer to execute the steps of a method is essential if the image processing method disclosed in Boyer is to function. Therefore, a computer-executable program is inherent in the teachings of Boyer.

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With regard to claims 35 and 36, a storage medium which stores computer-executable control program comprising code which causes the computer to execute the steps of a method is essential if the image processing method disclosed in Boyer is to function. Therefore, this storage medium is inherent in the teachings of Boyer.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer et al. (USPN 6,337,882). The arguments as to the relevance of Boyer as applied in paragraph 5 above are incorporated herein.

With regard to claim 4, which is representative of claim 14, Boyer discloses that the whole of the partial image is overlapped by adjacent partial images thereof (col. 6 lines 22-30 in conjunction with Figure 1C). Boyer further discloses a partial image field of view which is significantly larger than the display field of view (col. 7 lines 2-4 in conjunction with Figure 1D), but does not expressly disclose that the partial image field of view exactly doubles the display field of view. It would have been an obvious matter of design choice to modify Boyer by having the partial image field of view exactly double the display field of view, since the applicant has not disclosed that having a partial image field of view which is exactly twice the size of a display field of view solves any stated problem or is for any particular purpose and it appears that the image reproduction apparatus would perform equally well if the partial image field of view wasn't exactly twice the size of the display field of view.

8. Claims 2, 12, 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer as applied to claims 1, 11, 23 and 29 above, and further in view of Iijima et al. (USPN 5,973,726). The arguments as to the relevance of Boyer as applied in paragraph 5 above are incorporated herein.

With regard to claim 2, which is representative of claim 12, Boyer discloses that each of the entire images is panoramic. Boyd further discloses a situation where the field of view of the display means is 45 degrees and the partial images cover 65 degrees and start every 20 degrees (Boyer col. 6 lines 46-52). In this particular situation, a given selected image view can correspond to more than one partial image. In Boyer's disclosure, these partial images are overlapping, so there is always a single partial image which will encompass the entire selected image view and consequently there is no need for combining a plurality of partial images. In this case, the act of overlapping the partial images is a way of pre-combining the partial images in the sense that the overlapping of the images prevents a later situation where they would need to be combined. As a result, we can conclude that Boyer discloses selecting a plurality of partial images and generating the images to be displayed by extracting the image corresponding to the position and direction of a view point. The selected image view disclosed in Boyer contains information which is analogous to the position and direction of a view point. Boyer, however, does not expressly disclose combining a plurality of partial images.

Iijima, however, discloses combining partial images to obtain an image, based on on a prior determination (Iijima col. 6 lines 21-26). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Boyer's image reproduction apparatus by combining partial images if a desired image view corresponds to a plurality of the partial images as taught by Iijima. Such a modification would have allowed for a system in which the partial images would not have to be overlapped to the extent where combining is not required and consequently the apparatus would not have

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to store as much partial image data. This would have made for a cheaper system in which less memory was required.

With regard to claim 24, which is representative of claim 30, the argument and motivation to combine from claims 2 and 12 above are applicable to claims 24 and 30 as well.

With regard to claim 25, which is representative of claim 31, Boyer further discloses that partial images share overlapping portions with one another (Boyer col. 6 lines 25-26).

9. Claims 5, 10, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer as applied to claims 1 and 11 above, and further in view of Toyofuku et al. (USPN 6,661,455). The arguments as to the relevance of Boyer as applied in paragraph 5 above are incorporated herein.

With regard to claim 5, which is representative of claim 15, Boyer fails to expressly disclose that the partial images are stored as independent files. Toyofuku, however, discloses storing the frames which make up a panoramic image as independent files (Toyofuku col. 10 lines 46-57). The frames disclosed in Toyofuku are analogous to the partial images as recited in the claim. It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Boyer's image reproduction apparatus to specify that the partial images are stored as independent files in memory as taught by Toyofuku. Such a modification would have allowed for a modular system in which the partial images of a panoramic image were separated in memory and distinct.

With regard to claim 10, which is representative of claim 20, Toyofuku additionally discloses storing a partial image as a rotated image (Toyofuku col. 10 lines 46-57), but does not expressly disclose that image is rotated 90 degrees. It would have been an obvious matter of design choice to modify the combination of Boyer and Toyofuku by having the partial image stored as a 90 degree rotated image, since the applicant has not disclosed that having a partial image stored as a 90 degree rotated image solves any stated problem or is for any particular purpose and it appears that the image reproduction

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apparatus would perform equally well if the partial image wasn't stored exactly as a 90 degree rotated image.

10. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Boyer and Toyofuku as applied to claims 5 and 15 above, and further in view of DeNies (US 2002/0021353 A1). The arguments as to the relevance of Boyer and Toyofuku as applied in paragraph 9 above are incorporated herein.

With regard to claim 6, which is representative of claim 16, Boyer discloses determining a next file based on the position and viewpoint information (Boyer col. 6 lines 45-52). Boyer fails to expressly disclose that the view point is moving along a road on a map and the view point information is the position and moving direction of the view point.

DeNies, however, discloses recording panorama's while moving along a street (DeNies paragraph 0019) It would have been obvious to one reasonably skilled in the art at the time of the invention to modify the combination of Boyer and Toyofuku to include the additional capability that a view point can change in a moving direction along a road on a road map as taught DeNies. Such a modification would have allowed for a more robust system that could have different panoramic images which corresponded to different locations on a map and different view points for each of those panoramic images. This would have allowed for a system that had the additional capability of mobility.

11. Claims 7, 8, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer as applied to claims 1 and 11 above, and further in view of Endo et al. (EP 0 921 376 A1). The arguments as to the relevance of Boyer as applied in paragraph 5 above are incorporated herein.

With regard to claim 7, which is representative of claim 17, Boyer discloses storing $m \times n$ partial images obtained by n entire images each comprising m partial images (col. 6 lines 10-30) Boyer further

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discloses macroblock indentifiers which indicate position data of the partial images (col. 5 lines 18-22). Although Boyer doesn't explicitly state that this position data is a start position of the partial images, Boyer does disclose determining partial images which correspond to a selected image view on the basis of the position information of the selected image view. In order to do this, a start position of a partial image file is inherently stored. Boyer further discloses determining a partial image to be generated based on view point direction information and the display field of view and obtaining a partial image to be provided according to the header information. Boyer fails to expressly disclose determining a file containing an entire image corresponding to the view point position information.

Endo, however, discloses determining an image file based on the view point position information (Endo paragraphs 0108-0109). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Boyer's image reproduction apparatus in order to include a mechanism for determining panoramic images based on the position information as taught by Endo. Such a modification would have allowed for a mechanism of tracking the position information of panoramic images in a mobile system.

With regard to claim 8, which is representative of claim 18, Boyer further discloses determining a next image based on position information of a view point (Boyer col. 6 lines 45-52), but doesn't disclose that the next image is determined based on the position information of a view point which moves along a road on a map. Endo further discloses that the position of a view point moves along a road on a map.

12. Claims 26 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyer as applied to claims 21 and 27 above, and further in view of Endo et al. (EP 0 921 376 A1). The arguments as to the relevance of Boyer as applied in paragraph 5 above are incorporated herein.

With regard to claim 26, which is representative of claim 32, Boyer fails to expressly disclose that the partial image position information is linked to the position information on a map. Boyer also fails to

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expressly disclose an input means which can input the position and the viewpoint direction on the map. Endo, however, discloses storing image information with position information which is linked to map position information and an input means for inputting the map position data (Endo paragraph 0061).

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Boyer's image reproduction apparatus by adding that position information is linked to map data as taught by Endo. Such a modification would have allowed for a mechanism of tracking the position information of panoramic images in a mobile system.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakamura et al (USPN 6005987)

Jongerius (USPN 6563529)

Harada (USPN 6075559)

Furlan et al. (6466254)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L Edwards whose telephone number is (703) 305-6301. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

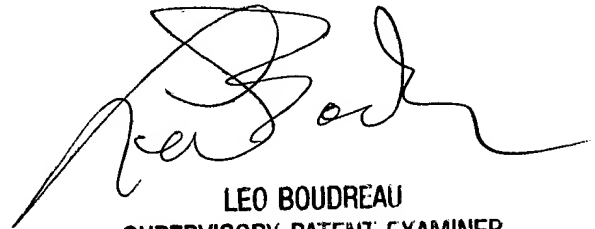
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Patrick Lynn Edwards

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A handwritten signature in black ink, appearing to read 'P. Edwards', with a large, stylized flourish extending to the right.A handwritten signature in black ink, appearing to read 'Leo Boudreau', with a large, stylized flourish extending to the right.

LEO BOUDREAU
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